

***Blastodacna ochrella* sp. nov. (Lepidoptera, Gelechioidea, Agonoxenidae) from Japan**Kazuhiro SUGISIMA¹⁾ and Susumu KAWAHARA²⁾¹⁾ Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University, Sapporo, 060-8589 Japan; e-mail: ksugi@res.agr.hokudai.ac.jp²⁾ 5, Miwa, Koshimizu, Hokkaido, 099-3614 Japan

Abstract *Blastodacna ochrella* sp. nov. is described on the basis of specimens collected in the eastern part of Hokkaidô and in the central part of Honsyû, Japan. The anellus lobes of the male genitalia are parallel-sided on the basal half and abruptly tapering on the distal half. This character indicates that the species is much closer to *B. lvoyskyi* Sinev, 1986 and *B. mironovi* Sinev, 1989 distributed in Central Asia, than to any of the congeneric species previously recorded in the Far East. Investigations into the vegetation at Miwa, Kosimizu-tyô, Hokkaidô, where adult moths of the new species were very frequently collected, imply that the species is associated with *Prunus sargentii* or *Sorbus alnifolia*.

Key words *Blastodacna ochrella* sp. nov., Agonoxenidae, Japan, relatives, presumed foodplant.

The gelechioid genus *Blastodacna* Wocke, 1876 is Holarctic in distribution, and has been hitherto represented by eight Palaearctic and two Nearctic species (Sinev, 1989). Morphologically, the genus is characterised very well by the peculiar structures of the male genitalia: the valva is moderately wide in the basal part and abruptly narrowed into a dorsal plate-like projection which is very long and somewhat spatulate; the diaphragma is strongly sclerotised and modified into a pair of large lobes, which are referred to as “juxta lobes” (Sinev, 1989) or “anellus lobes” (Koster & Sinev, 2003); the gnathos is represented by a pair of sclerotised arms inclined backwards over the tegumen, and each arm has at its apex a round knob articulated with the arm and ornamented with several rows of spines. Further characterisation for the genus was provided by Koster & Sinev (2003) as well as Riedl (1969). All species with information on their larval bionomics are associated with ligneous Rosaceae of the genera *Crataegus*, *Malus*, *Prunus*, and *Pyrus* (Koster & Sinev, 2003). Besides these plants, Park (1986) reported *Diospyros kaki* (Ebenaceae) as the foodplant of *B. pyrigalla* (Yang, 1977). Larval feeding habit varies in different species: borers or gall-formers on twigs and fruit-borers (Koster & Sinev, 2003). The west Palaearctic fauna was taxonomically revised by Riedl (1969) and again very recently by Koster & Sinev (2003). A key to the Palaearctic species was provided by Sinev (1989). In the Russian Far East, Sinev (1997) recorded *B. atra* (Haworth, 1828) and *B. mandshurica* Sinev, 1988. In China, Yang (1977) described *B. pyrigalla* and recorded an unidentified species. In Korea, *B. pyrigalla* was recorded (Park, 1986; Sinev & Park, 1994).

In Japan, *Blastodacna* was recorded for the first time by Kawahara (2000). He reported an unidentified *Blastodacna* species (misspelled as *Blastdacna*) on the basis of identification by K. Sugisima and gave a photo of the adult moth. At that time Sugisima reserved his conclusion on the identity of the Japanese species, because he recognised features in the genitalia of both sexes which are very similar to those of *B. mironovi* Sinev, 1989 from the Kyrgyz Republic, and also that the Japanese species had a very different colouration. In the course of this study, the senior author, Sugisima, has been convinced that the Japanese species is distinct from any named species of *Blastodacna* and should be described as new to science. Investigations by the junior author, Kawahara, into the vegetation at Miwa,

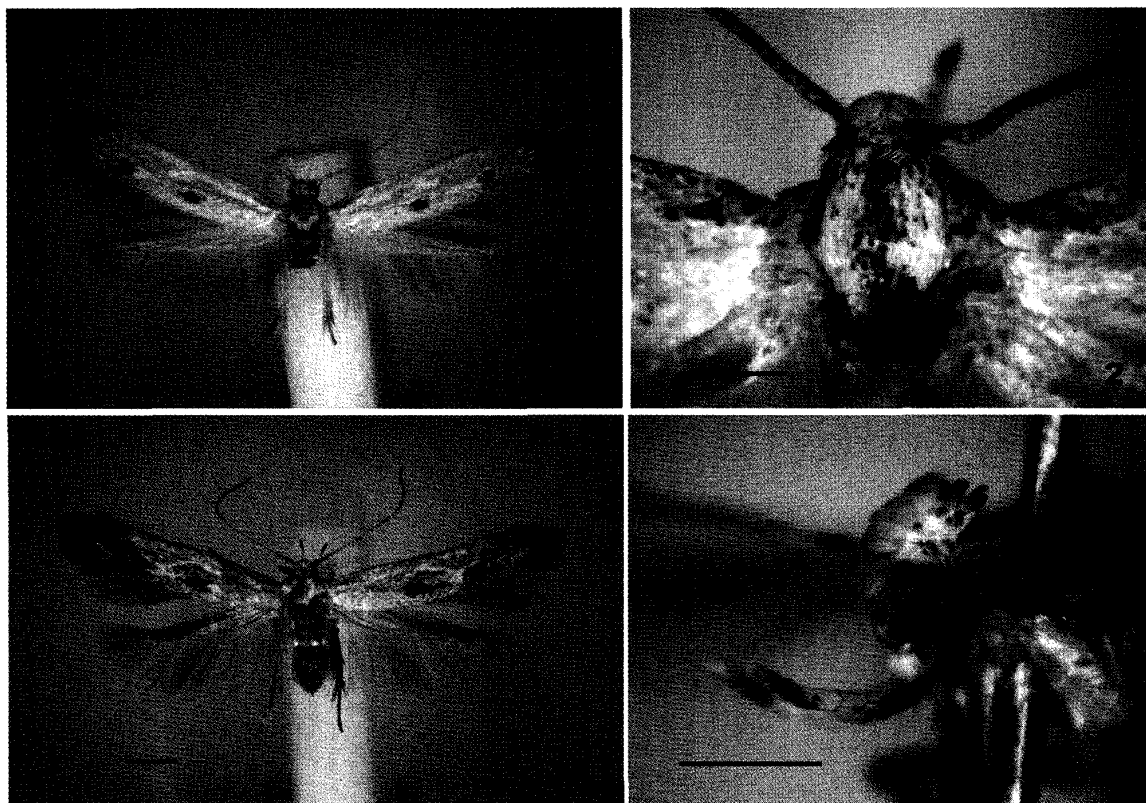
Kosimizu-tyô, Hokkaidô, a locality where the species was frequently collected, revealed that two species of ligneous Rosaceae, *Prunus sargentii* and *Sorbus alnifolia*, are found there as presumable candidates for foodplants of the species.

In the present paper, the taxonomic description of the Japanese species is given by Sugisima, and bionomic information by Kawahara.

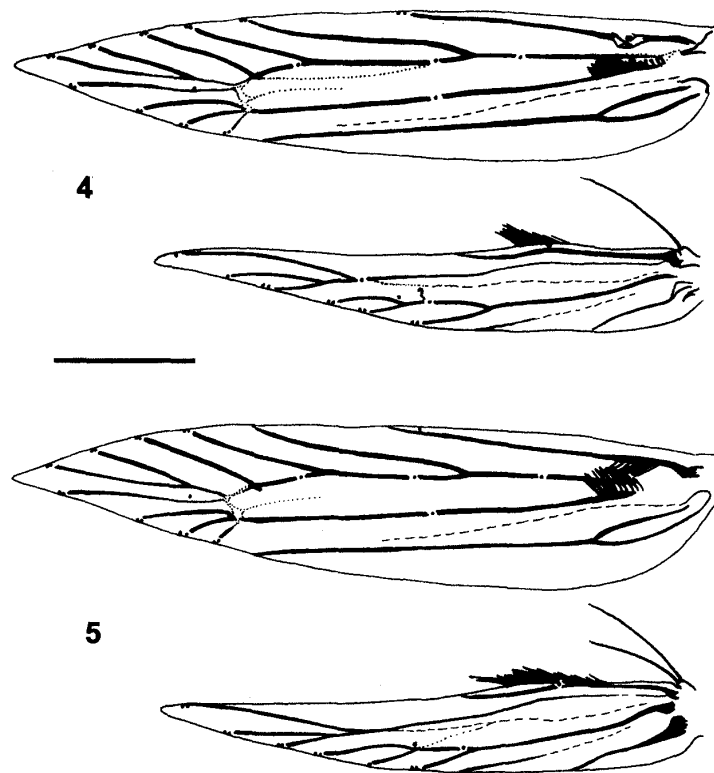
***Blastodacna ochrella* Sugisima, sp. nov. (Figs 1–7)**

Blastodacna [sic] sp.: Kawahara, 2000: 5, fig. 1.

Specimens examined. Holotype: ♂, Miwa, Kosimizu-tyô, Hokkaidô, Japan, [43°52'N, 144°29'E], 29. v. 2002, K. Sugisima leg., genitalia mounted on slide no. 1100 (K. Sugisima, 2002), deposited in the collection of Systematic Entomology, Hokkaido University, Sapporo, Japan (SEHU). Paratypes. [Hokkaidô] 1 ♀, Abasiri[-si?], 7. vi. 1961, T. Kumata leg.; 4 ♂ 6 ♀, the same locality as the holotype, S. Kawahara leg. (1 ♂, 4. vi. 1995; 1 ♂ 4 ♀, 27. v–8. vi. 1998; 1 ♀, 12. vi. 2000; 2 ♂ 1 ♀, 7. vi. 2003). [Honsyû] All specimens were collected in Nagano-ken by N. Hirano: 1 ♀, Ikezawa, Ikusaka-mura, [36°24'N, 137°57'E], 2. vi. 1986; 2 ♀, Ôkuti-zawa, Toyosina-mati, [36°17'N, 137°57'E] (1 ♀, 6. vi. 1980; 1 ♀, 2. vi. 1984); 1 ♀, Simasima-dani, Azumi-mura, [36°11'N, 137°46'E], 22. v. 1998. Of the paratypes, 2 ♂ 7 ♀ deposited in SEHU, 1 ♂ 1 ♀ in Entomological Laboratory of Osaka Prefecture University, Sakai, Ôsaka, Japan (OPU), and 1 ♂ 1 ♀ in Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (ZIN).



Figs 1–3. Moths of *Blastodacna ochrella* sp. nov. 1. ♂, holotype, whole moth (abdomen removed for dissection). 2. ♀, paratype (Miwa), colouration of thorax. 3. ♀, paratype (Miwa) (A: whole moth. B: head in lateral view, showing the colouration of labial palpi). Scale line 1 mm for Figs 1 & 3A, 0.5 mm for Figs 2 & 3B.



Figs 4 & 5. Wing venations of *Blastodacna ochrella* sp. nov., paratypes (Miwa). 4. ♂, slide no. 1354 of KS. 5. ♀, slide no. 1355 of KS. Scale line 1 mm. Dots indicate positions of campaniform sensilla.

Description

Male and Female. No significant differences in size and colouration between sexes.

Forewing length 5.0–5.8 mm (holotype 5.5 mm).

Head beige, often dorsally mottled with dark brownish tips of scales. Antennae 8/10–9/10 as long as forewings, brownish to dark brownish, ventrally paler, with beige annulations dorsally on flagellum. Labial palpi (Fig. 3B) beige, with two dark brownish patches; the first patch lying on the outer surface of the second segment from the base to apical 1/5; the second patch forming a ring surrounding the medial area of the third segment, but not reaching the ends of the segment. Thorax (Fig. 2) beige, with a dark brownish median stripe; tegula dark brownish in cephalic part. Fore and mid legs dark brownish, often beige on ventral side, with beige patches at the apex of each segment and at the middle on outer side of tibiae; apical tarsal segment beige. Hind legs dark brownish on outer side of femurs, on dorsal side of tarsi, and on spurs nearly entirely, with a beige patch at apex of each segment; tibiae beige to dark brownish, dorsally ornamented with long beige hairs sometimes tinged with grey. Abdomen brownish.

Forewing ochreous, edged with dark brown along costal margin and termen, with two blackish tufts of raised scales on fold at 2/5 and 2/3; the dark brownish edging wider in apical part; a paler streak on wing, sometimes indistinct particularly in basal 1/3, running along cephalic margin of cell in basal 1/3, then obliquely extending towards the blackish tuft at 2/3, and near the tuft curving and extending towards the commencement of cilia, where the dark brownish costal edging is weakened or interrupted; cilia grey-brownish,

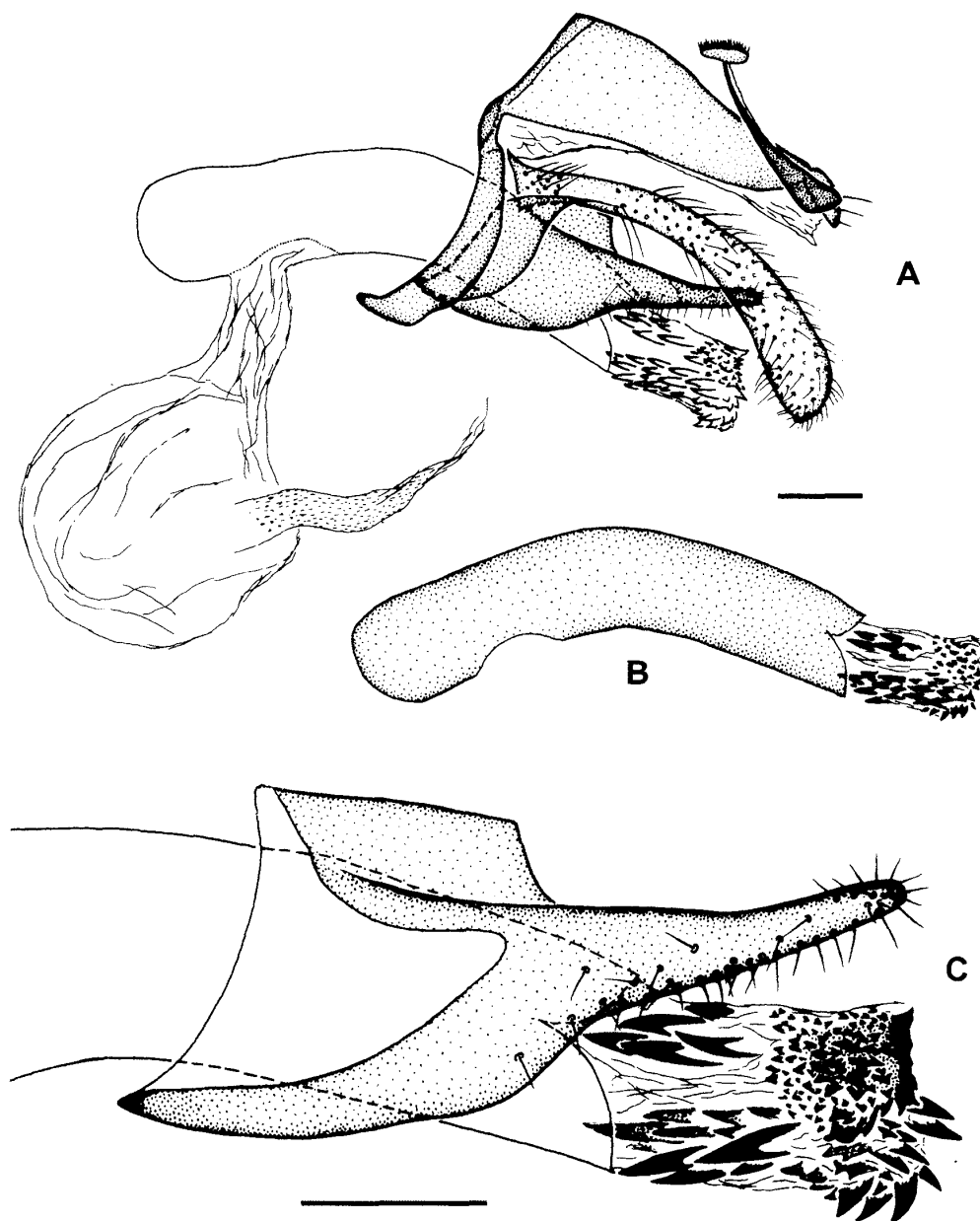


Fig. 6. Male genitalia of *Blastodacna ochrella* sp. nov., lateral view, holotype (A: whole genitalia, aedeagus simplified, right half omitted. B: aedeagus. C: anellus lobe and cornuti magnified). Scale line 0.1 mm.

except for those around the commencement being beige; an indistinct dark brownish cilia line present; dark brownish edging and cilia giving an impression that the wing is dark brownish in the apical part. Hindwing and cilia grey-brownish.

Wing venation (Figs 4 & 5). Forewing. Sc reaching the middle of costal margin; veins weakened around apex of cell; distance between R_1 and R_2 by far widest, R_4 and R_5 short-stalked in basal part; M and CuA represented by four branches, the most cephalic one (probably M_1) arising from near the base of R_{4+5} , the others (probably M_{2+3} , CuA_1 , CuA_2) from around the caudal angle of the cell and slightly distant from the apex of CuA-stem, the most caudal branch vestigial; CuP disappearing apically; anal vein separated into two veins basally. Hindwing. Cell completely open; Rs basally weak; M_1 and M_2 arising from

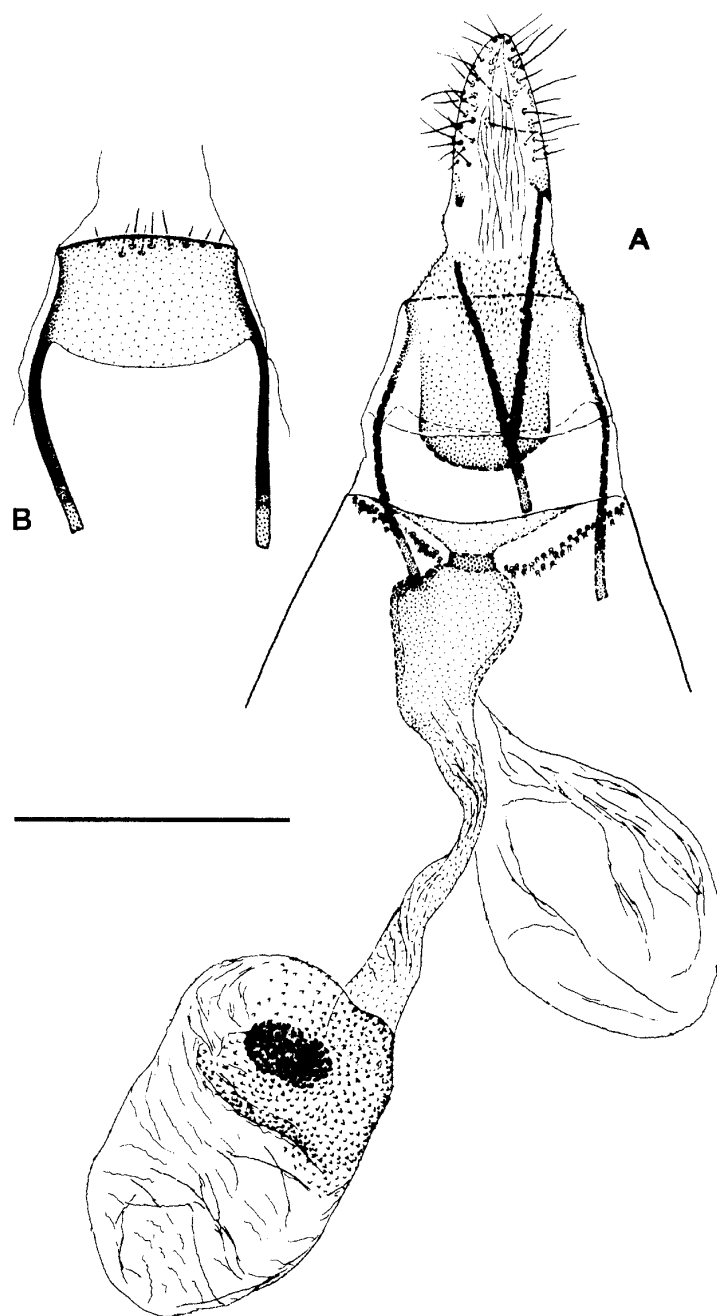


Fig. 7. Female genitalia of *Blastodacna ochrella* sp. nov., ventral view, paratype (Miwa), slide no. 1101 of KS (A: whole genitalia, eighth tergite simplified. B: eighth tergite). Scale line 0.5 mm.

common stem, the base of which is on Rs; CuA-stem recognised throughout, with three branches representing M_3 , CuA_1 , CuA_2 .

Male genitalia (Fig. 6). Uncus small, triangular, located between bases of gnathos arms, separated from tegumen by a rudimental suture, with three pairs of setae. Tegumen 1.3 times as long as wide, tapering; cephalo-ventral ends smoothly continued to vinculum. Gnathos arm slightly longer than $1/2$ length of tegumen; apical knob with three rows of spines. Valva typical for the genus in structures; dorsal plate evenly down-curved, ornamented with sparse setae except for the second $1/8$; setae on basal $1/8$ longer than those

on the other part. Anellus lobe 0.8 times as long as valva, wide and almost parallel-sided in basal half, abruptly tapering and ornamented with sparse setae in apical half; apex of lobe nearly reaching apex of tegumen. Vinculum wide, saccus bluntly developed. Aedeagus weakly down-curved; cornuti composed of a few groups of teeth and a sclerotised plate ornamented with smaller teeth and tubercles; some teeth very large.

Female genitalia (Fig. 7). Papillae anales forming a cone, ornamented with sparse setae, moderately sclerotised except for the bases of apophyses which are strongly sclerotised. All apophyses slightly spatulate, less sclerotised in cephalic part; apophyses posteriores 1.2–1.3 times as long as anteriores. Eighth tergite with about ten sparse setae almost along caudal margin; eighth sternite membranous and spined in caudal part, distinctly sclerotised in cephalic part, with its cephalic margin convex. Ostium situated on caudal margin of seventh sternite, 3/5 as wide as caudal margin of seventh sternite. Antrum little sclerotised, very shallow, funnel-shaped and abruptly narrowing towards short ring-shaped colliculum; ductus bursae sclerotised and swollen in caudal 1/3, the remaining part being less sclerotised, cylindrical, and lined with micro-spines or micro-tubercles; a large membranous bag branching off from the swollen part. Corpus bursae ellipsoidal, caudally lined with blunt spines or tubercles; the spines or tubercles continued from ductus bursae, becoming larger towards caudal area of corpus bursae, where they fuse with each other and form an oval pine-cone-like signum.

Differential remarks. In *B. ochrella*, the anellus lobes of the male genitalia are parallel-sided on the basal half and abruptly tapering on the remaining half. This character is shared by two Central Asian relatives: *B. lvovskyi* Sinev, 1986 recorded in the Republic of Tajikistan and *B. mironovi* Sinev, 1989 known from the Kyrgyz Republic. In *B. ochrella*, the teeth of the cornuti are much larger and much more numerous than those of the two relatives. The new species is distinguished from *B. lvovskyi* also in the shape of the joint of the tegumen and vinculum; the outline of the area is smooth in the new species, but it is obviously angled in the relative. *B. mironovi* is very similar to the new species in the structures of genitalia in both sexes. In the male genitalia, the anellus lobes are as long as the tegumen in the new species, while they are longer than the tegumen in the relative. In the female genitalia, the antrum is shallower and the swollen sclerotised part of the ductus bursae is larger in the new species than in the relative. In colouration, the new species is peculiar in having a yellow-brownish appearance. The two Central Asian relatives as well as the three congeneric species recorded in the Far East are dark greyish in appearance. A Nearctic species, *B. bicristatella* (Chambers, 1879), is somewhat similar to the new species in colouration, but easily distinguished by the trapezoidal anellus lobes of the male genitalia.

Distribution. Japan: Eastern part of Hokkaidô (around Abasiri) and central part of Honsyû (Nagano-ken).

Biology. The micromoth fauna has frequently been surveyed at Miwa, Kosimizu-tyô, Hokkaidô, for the last ten years by the junior author, and adult moths of the new species were collected in 1995, 1998, 2000, 2002, 2003. All the specimens were collected in daytime from the end of May to the beginning of July, with the exception of one male trapped at light. This suggests that the new species is univoltine with at most two weeks of flight period and diurnal. Known foodplants of the *Blastodacna* species are predominantly ligneous Rosaceae, such as *Crataegus*, *Malus*, *Prunus*, and *Pyrus* (Koster & Sinev, 2003). Given that this generic habit is true of *B. ochrella*, foodplants of the new species are likely to be found among the ligneous Rosaceae growing at localities with constant records of the species. Investigations into the vegetation of the forest at Miwa, Kosimizu-tyô, Hokkaidô,

revealed that two rosaceous trees, *Prunus sargentii* and *Sorbus alnifolia*, are growing there. *Sorbus* has not yet been recorded as a foodplant of *Blastodacna*.

Acknowledgements

Sugisima thanks Dr S. Yu. Sinev at ZIN, for confirming Sugisima's identification of the Japanese species as distinct from the Central Asian species. Sugisima thanks Mr N. Hirano at Hata-mati, Nagano-ken, for offering the specimens collected in Nagano-ken. We thank Prof. M. Suwa at SEHU, Dr T. Kumata at Ebetu-si, Hokkaidô, and Mr H. Yoshimoto, Nishi-Tôkyô, for critically reading earlier drafts and giving valuable comments. We thank Mr K. Tateiwa at OPU and Dr F. Komai at Environmental Planning Department, Osaka University of Arts for providing us with literature.

References

- Kawahara, S., 2000. Moths of Koshimizu-cho, northeast Hokkaido VI. *Yugato* **159**: 5–12 (in Japanese).
- Koster, J. C. and S. Yu. Sinev, 2003. Momphidae, Batrachedridae, Stathmopodidae, Agonoxenidae, Cosmopterigidae, Chrysopeliidae. In Huemer, P., Karsholt, O. and L. Lyneborg (Eds), *Microlepidoptera of Europe* **5**: 1–387. Apollo Books, Stenstrup.
- Park, K.-T., 1986. A larval gall-making species of the genus *Blastodacna* Wocke (Lepidoptera, Momphidae) in Korea. *Tyô Ga* **37**: 67–71.
- Riedl, T., 1969. Matériaux pour la connaissance des Momphidae paléarctiques (Lepidoptera), 9. Revue des Momphidae européennes, y compris quelques espèces d'Afrique du Nord et du Proche-Orient. *Polskie Pismo ent.* **39**: 635–919.
- Sinev, S. Yu., 1986. [A list of the narrow-winged moths (Lepidoptera, Momphidae. s. l.) in the fauna of the USSR.] *Trudy vses. ent. Obshch.* **67**: 19–74 (in Russian).
- , 1989. [New taxa of narrow-winged moths (Lepidoptera: Blastodacnidae, Cosmopterigidae, Chrysopeliidae) from Central Asia.] *Proc. zool. Inst. Leningr.* **200**: 3–26 (in Russian).
- , 1997. Family Blastodacnidae. In Ler, P. A. (Ed.), *Trichoptera and Lepidoptera. Key to the Insects of Russian Far East* **5** (1): 502–510. Vladivostok, Dal'nauka. (In Russian).
- Sinev, S. Yu. & K.-T. Park, 1994. A preliminary list of Stathmopodidae, Batrachedridae, Blastodacnidae and Cosmopterigidae (Lepidoptera: Gelechiidae) of the Korean Peninsula. *Korean J. appl. Ent.* **33**: 194–200.
- Yang, C. K., 1977. [*Moths of North China*] 1. 3, 299 pp., 12 pls. Beijing Agricultural University, Beijing. (In Chinese).

摘 要

チャイロエダモグリガ (新種, 新称) (鱗翅目, キバガ上科, エダモグリガ科 (新称)) (杉島一広・川原 進)

Blastodacna ochrella Sugisima, sp. nov. (Figs 1–7)

頭部および胸部は淡い黄土色で、胸部背面中央には濃褐色の縦帯、下唇鬚には濃褐色斑が現れる。触角は褐色で脚は濃褐色。前翅は胴体よりも濃い黄土色で、翅長の2/5および2/3の折り目上に逆立った鱗片からなる黒色斑を持ち、前縁と外縁を暗褐色の鱗片で縁取られる。この縁取りは翅の先端付近で濃く幅広くなり、灰褐色の縁毛とあいまって、あたかも翅先端1/3が暗色であるかのような印象を与える。♂交尾器は背面側に反り返ったgnathosや基部だけが幅広くその先が細長い板状になるvalvaなど、典型的な*Blastodacna*属の特徴を備える。Anellus lobeは中央付近まで幅広く、そこから急激に細くなって円錐形の突起となる。このようなanellus lobeの構造は、極東から報告されている同属の種では知られておらず、中央アジアから記録されている*Blastodacna lvovskyi* Sinev, 1986 (タジキスタン共和国) および*B. mironovi* Sinev, 1989 (キルギス共和国) に共通する。チャイロエダモグリガの外観が黄褐色であるのに対し、これら中央アジアの2近縁種および極東から記録されている3種の外観は暗灰色であるため、混同の恐れはない。

模式産地での調査によれば、成虫は昼行性で、その出現期はたかだか2週間と思われる。*Blastodacna* 属で寄主植物の判明しているものは、バラ科の樹木の若枝か果実を食害するとされる。模式産地では本種の成虫が継続的に採集されており、周辺にあるバラ科樹木はエゾヤマザクラとアズキナシである。仮にアズキナシが寄主植物であった場合、*Blastodacna* 属の寄主としては植物の属レベルで初記録となる。

(Accepted April 11, 2004)